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Static Electricity Precautions

Static electricity could damage components on this mainboard. Take the following precautions while unpacking this mainboard and installing it in a system.

1. Don't take this mainboard and components out of their original static-proof package until you are ready to install them.
2. While installing, please wear a grounded wrist strap if possible. If you don't have a wrist strap, discharge static electricity by touching the bare metal of the system chassis.
3. Carefully hold this mainboard by its edges. Do not touch those components unless it is absolutely necessary. Put this mainboard on the top of a static-protection package with component side facing up while installing.

Pre-Installation Inspection

1. Inspect this mainboard whether there are any damages to components and connectors on the board.
2. If you suspect this mainboard has been damaged, do not connect power to the system. Contact your mainboard vendor about those damages.

Notice:

1.Owing to Microsoft's certifying schedule is various to every supplier, we might have some drivers not certified yet by Microsoft. Therefore, it might happen under Windows XP that a dialogue box (shown as below) pop out warning you this software has not passed Windows Logo testing to verify its compatibility with Windows XP. Please rest assured that our RD department has already tested and verified these drivers. Click the "Continue Anyway" button and go ahead the installation.

2. USB 2.0 Driver Limitations:

2-1.The USB 2.0 driver only supports Windows XP and Windows 2000.

2-2.If you connect a USB 2.0 hub to the root hub, plugging USB devices into this hub, the system might not successfully execute certain USB devices' connection because it could not recognize these devices.

Currently, we are working on such limitations' solution. As soon as the solution is done, the updated USB drive will be released to our website: www.pcchips.com.tw for your downloading.

Chapter 1

Introduction

This mainboard has a **Socket-478** supporting **Intel Pentium 4/Hyper Threading Technology** processors with Front-Side Bus (FSB) speeds up to **800**/533 MHz. Hyper Threading Technology, designed to take advantage of the multitasking features in Windows XP, gives you the power to do more things at once.

This mainboard integrates the **VIA PT800** Northbridge along with **VIA8237** Southbridge chipsets that supports the **Serial ATA** — a new interface for high-performance and mainstream desktop PCs; the built-in **USB 2.0** providing higher bandwidth, implementing **Universal Serial Bus Specification Revision 2.0** and is compliant with **UHCI 1.1** and **EHCI 0.95**.

This mainboard supports **AC 97 Audio Codec** and provides **Ultra DMA** 33/66/100/**133** functionIt has one **8x AGP**, one **CNR** (Communications and Networking Riser) and four 32-bit **PCI** slots. There is a full set of I/O ports including two PS/2 ports for mouse and keyboard, one serial port, one parallel port and maximum eight USB2.0 ports – four back-panel ports and onboard USB connectors USB3/USB2 providing four extra ports by connecting the Extended USB Module to the mainboard.

This mainboard is a **Full ATX** mainboard and has power connectors for an ATX power supply.

Note: You must initiate the HT CPU function through BIOS setup. It is strongly recommended you refer to the Page 36 for relative details.

Key Features

This mainboard has these key features:

Socket-478 Processor
- ♦ Supports **Intel Pentium 4 series** CPU with **Hyper Threading** Technology
- ♦ Supports up to **800**/533 **MHz** Front-Side Bus

> **Hyper-Threading** technology enables the operating system into thinking it's hooked up to two processors, allowing two threads to be run in parallel, both on separate 'logical' processors within the same physical processor.

Chipset
There are **VIA PT800 Northbridge** and **VIA 8237 Southbridge** in the chipsets in accordance with an innovative and scalable architecture with proven reliability and performance. Here is a list of the chipset arrangement and their respective features:

NB	SB	Function
PT800	**8237**	CPU FSB: **800**/533MHz DDR**400**, maximum eight USB2.0 ports, two **Serial ATA** connectors

- ♦ Defines Highly Integrated Solutions for Performance PC Desktop Designs--High performance Northbridge with 800/533 MHz Front Side Bus for Pentium 4 plus AGP 8x external bus.
- ♦ Provide superior performance between the CPU, DRAM, V-Link bus and AGP8X graphics controller bus with pipelined, burst, and concurrent operation.
- ♦ Full Featured Accelerated Graphics Port (AGP) Controller --AGP v3.0 compliant with 8x transfer mode.
- ♦ Advanced High-Performance DDR DRAM Controller -- Supports DDR400, DDR333, DDR266, and DDR200 double-data-rate synchronous DRAM.

- ♦ High Bandwidth 533 MB/ sec 8-bit V-Link Host Controller --Configurable outstanding transaction queue for Host to V-Link Client accesses.
- ♦ Advanced System Power Management Support – ACPI 1.0B and PCI Bus Power Management 1.1 compliant.
- ♦ PCI to system memory data streaming up to 132Mbyte/sec (data sent to north bridge via high speed V-Link interface)
- ♦ PCI-2.2 compliant, 32-bit 3.3V PCI interface with 5V tolerant inputs
- ♦ Support five PCI slots of arbitration and decoding for all integrated functions and LPC bus.
- ♦ Dual Channel Serial ATA/RAID Controller—Complies with Serial ATA Specification Revision 1.0

Memory Support
- ♦ Two 184-pin DIMM sockets for DDR SDRAM memory modules
- ♦ Supports DDR**400**/333memory bus
- ♦ Maximum installed memory is 2GB

AC97 Audio Codec
- ♦ Compliant with AC'97 2.1 specification
- ♦ Three Audio Jacks – Line-Out, Line-In and Microphone-In
- ♦ Sound Blaster, Sound Blaster Pro Compatible
- ♦ Digital I/O compatible with consumer mode S/PDIF
- ♦ Advanced power management support

Expansion Options

The mainboard comes with the following expansion options:
- ♦ Four 32-bit PCI slots
- ♦ One 8x/4xAGP slot
- ♦ One Communications Network Riser (CNR) slot

Onboard IDE
- ♦ Two IDE Connectors
- ♦ Supports PIO (Programmable Input/Output) and DMA (Direct Memory Access) modes

- Supports IDE Ultra DMA bus mastering with transfer rates of 33/66/100/**133** MB/sec

Serial ATA
- Two Serial ATA Connectors
- Transfer rate exceeding best ATA (~150 MB/s) with scalability to higher rates
- Low pin count for both host and devices

Onboard I/O Ports

The mainboard has a full set of I/O ports and connectors:
- Two PS/2 ports for mouse and keyboard
- One serial port
- One parallel port
- Eight USB2.0 ports (four back-panel ports, onboard USB connectorsUSB2/USB3 providing four extra ports
- Audio jacks for microphone, line-in and line-out

Fast Ethernet LAN (optional)
- **100Base-TX/10Base-T Physical Layer Solution**
- Dual Speed – 100/10 Mbps
- MII Interface to Ethernet Controller/Configuration & Status
- Auto Negotiation: 10/100, Full/Half Duplex
- Meet All Applicable IEEE802.3, 10Base-T and 100Base-TX Standards

USB 2.0
- Compliant with Universal Serial Bus Specification Revision 2.0
- Compliant with Intel's Enhanced Host Controller Interface Specification Revision 0.95
- Compliant with Universal Host Controller Interface Specification Revision 1.1
- PCI multi-function device consists of two **UHCI Host Controller** cores for full-/low-speed signaling and one **EHCI Host Controller** core for high-speed signaling

- ♦ Root hub consists 4 downstream facing ports with integrated physical layer transceivers shared by **UHCI** and **EHCI** Host Controller
- ♦ Support PCI-Bus Power Management Interface Specification release 1.1
- ♦ Legacy support for all downstream facing ports

BIOS Firmware

This mainboard uses AMI BIOS that enables users to configure many system features including the following:

- ♦ Power management
- ♦ Wake-up alarms
- ♦ CPU parameters and memory timing
- ♦ CPU and memory timing

The firmware can also be used to set parameters for different processor clock speeds.

Bundled Software

- ♦ **PC-Cillin 2002** provides automatic virus protection under Windows 98/ME/NT/2000/XP
- ♦ **Adobe Acrobat Reader V5.0** is the software to help users read .PDF files.

Dimensions

- ♦ Full ATX form factor of 305 x 190mm

> **Note: Hardware specifications and software items are subject to change without notification.**

Package Contents

Your mainboard package contains the following items:
- ❑ The mainboard
- ❑ The User's Manual
- ❑ One diskette drive ribbon cable (optional)
- ❑ One IDE drive ribbon cable
- ❑ The Software support CD

Optional Accessories

You can purchase the following optional accessories for this mainboard.
- ❑ The Extended USB module
- ❑ The CNR v.90 56K Fax/Modem card
- ❑ The Card Reader
- ❑ The Serial ATA cable (optional)

Note: You can purchase your own optional accessories from the third party, but please contact your local vendor on any issues of the specification and compatibility.

Chapter 2
Mainboard Installation

To install this mainboard in a system, please follow these instructions in this chapter:

❑ Identify the mainboard components
❑ Install a CPU
❑ Install one or more system memory modules
❑ Make sure all jumpers and switches are set correctly
❑ Install this mainboard in a system chassis (case)
❑ Connect any extension brackets or cables to connectors on the mainboard
❑ Install peripheral devices and make the appropriate connections to connectors on the mainboard

Note:
1. Before installing this mainboard, make sure jumper JBAT1 is under Normal setting. See this chapter for information about locating JBAT1 and the setting options.
2. Never connect power to the system during installation; otherwise, it may damage the mainboard.

Mainboard Components

Identify major components on the mainboard via this diagram underneath.
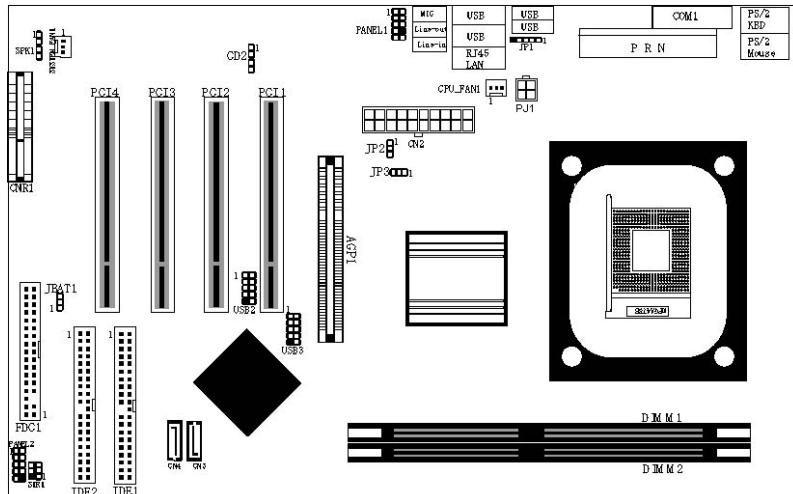
> **Note:** Any jumpers on your mainboard that do not appear in this illustration are for testing only.

I/O Ports

The illustration below shows a side view of the built-in I/O ports on the mainboard.
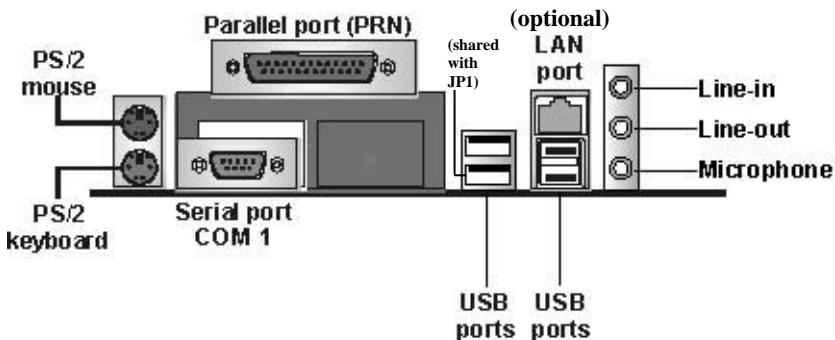
PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS/2 Keyboard	Use the lower PS/2 port to connect a PS/2 keyboard.
Parallel Port (PRN)	Use the Parallel port to connect printers or other parallel communications devices.
COM1	Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1.
LAN Port (optional)	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
USB Ports	Use the USB ports to connect USB devices. *Note: The lower USB port located near the Parallel port is shared with the JP1 connector.*
Audio Ports	Use the three audio ports to connect audio devices. The first jack is for stereo Line-In signal. The second jack is for stereo Line-Out signal. The third jack is for Microphone.

Installing the Processor

This mainboard has a Socket 478 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

Follow these instructions to install the CPU:
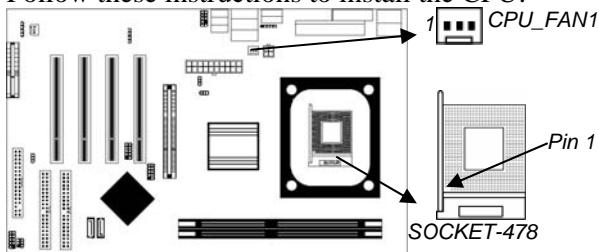
1. Unhook the locking lever of the CPU socket. Pull the locking lever away from the socket and raising it to the upright position.

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2. Match the pin1 corner marked as the beveled edge on the CPU with the pin1 corner on the socket. Insert the CPU into the socket. Do not use force.
3. Push the locking lever down and hook it under the latch on the edge of socket.
4. Apply thermal grease to the top of the CPU.
5. Install the cooling fan/heatsink unit onto the CPU, and secure them all onto the socket base.
6. Plug the CPU fan power cable into the CPU fan connector (CPU_FAN1) on the mainboard.

Installing Memory Modules

This mainboard accommodates two 184-pin 2.5V unbuffered Double Data Rate SDRAM (DDR SDRAM) Dual Inline Memory Module (DIMM) sockets, and supports up to 2.0 GB of **400**/333 MHz DDR SDRAM.

DDR SDRAM is a type of SDRAM that supports data transfers on both edges of each clock cycle (the rising and falling edges), effectively doubling the memory chip's data throughput. DDR DIMMs can synchronously work with 100 MHz or 133 MHz memory bus.

DDR SDRAM provides 1.6 GB/s or 2.1 GB/s data transfer rate depending on whether the bus is 100 MHz or 133 MHz. DDR SDRAM uses additional power and ground lines and requires 184-pin 2.5V unbuffered DIMM module.

DIMM1

DIMM2
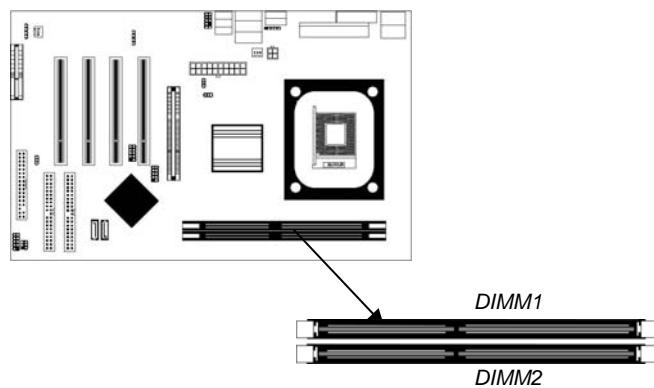
Memory Module Installation Procedure
These modules can be installed with up to 2 GB system memory. Refer to the following to install the memory module.

1. Push down the latches on both sides of the DIMM socket.
2. Align the memory module with the socket. There is a notch on the DIMM socket that you can install the DIMM module in the correct direction. Match the cutout on the DIMM module with the notch on the DIMM socket.
3. Install the DIMM module into the socket and press it firmly down until it is seated correctly. The socket latches are levered upwards and latch on to the edges of the DIMM.
4. Install any remaining DIMM modules.

Jumper Settings

Connecting two pins with a jumper cap is SHORT; removing a jumper cap from these pins, OPEN.
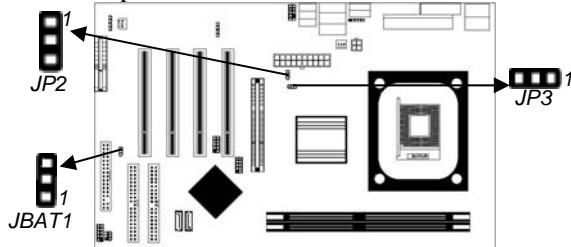
JBAT1: Clear CMOS Jumper
Use this jumper to clear the contents of the CMOS memory. You may need to clear the CMOS memory if the settings in the Setup Utility are incorrect and prevent your mainboard from operating. To clear the CMOS memory, disconnect all the power cables from the mainboard and then move the jumper cap into the CLEAR setting for a few seconds.

Function	Jumper Setting
Normal	Short Pins 1-2
Clear CMOS	Short Pins 2-3

JP2, JP3: CPU Clock

Use this jumper to enable the selection of the CPU frequency.

CPU Clock	JP2	JP3
100M	Short Pins 2-3	Short Pins 2-3
133M	Short Pins 1-2	Short Pins 2-3
200M	Short Pins 2-3	Short Pins 1-2

Install the Mainboard

Install the mainboard in a system chassis (case). The board is an ATX size mainboard. You can install this mainboard in an ATX case. Make sure your case has an I/O cover plate matching the ports on this mainboard.

Install the mainboard in a case. Follow the case manufacturer's instructions to use the hardware and internal mounting points on the chassis.
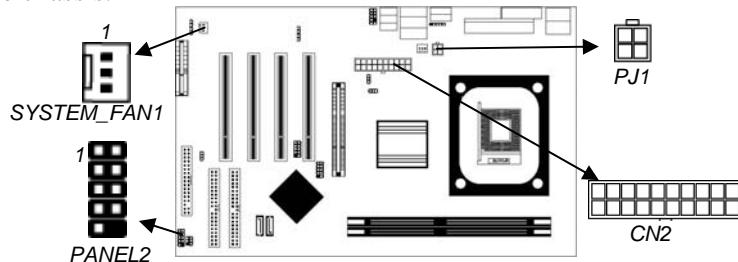
Connect the power connector from the power supply to the **CN2** connector on the mainboard. **PJ1** is the CPU Vcore power connector.

If there is a cooling fan installed in the system chassis, connect the cable from the cooling fan to the **SYSTEM_FAN1** fan power connector on the mainboard.

Connect the case switches and indicator LEDs to the **PANEL2** connector. Here is a list of the PANEL2 pin assignments.

Pin	Signal	Pin	Signal
1	HD_LED_P	2	FP PWR/SLP
3	HD_LED_N	4	FP PWR/SLP
5	RESET_SW_N	6	POWER_SW_P
7	RESET_SW_P	8	POWER_SW_N
9	RSVD_DNU	10	KEY

Connecting Optional Devices

Refer to the following for information on connecting the mainboard's optional devices:
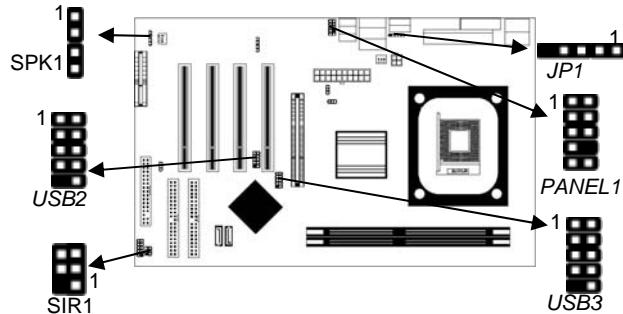
SPK1: Speaker Connector

Connect the cable from the PC speaker to the SPK1 header on the mainboard.

Pin	Signal	Pin	Signal
1	SPKR	2	NC
3	GND	4	+5V

PANEL1: Front Panel Audio Connector

This connector allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal	Pin	Signal
1	AUD_MIC	2	AUD_GND
3	AUD_MIC_BIAS	4	AUD_VCC
5	AUD_FPOUT_R	6	AUD_RET_R
7	HP_ON	8	KEY
9	AUD_FPOUT_L	10	AUD_RET_L

USB2/USB3: Front panel USB Connector

The mainboard has USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connectors USB2/USB3 to connect the front-mounted ports to the mainboard.

Pin	Signal	Pin	Signal

1	VERG_FP_USBPWR0	2	VERG_FP_USBPWR0
3	USB_FP_P0-	4	USB_FP_P1-
5	USB_FP_P0+	6	USB_FP_P1+
7	GROUND	8	GROUND
9	KEY	10	USB_FP_OC0

1. Locate the USB2/3 connector on the mainboard.
2. Plug the bracket cable onto the USB2/3 connector.
3. Remove a slot cover from one of the expansion slots on the system chassis. Install an extension bracket in the opening. Secure the extension bracket to the chassis with a screw.

JP1: USB Card Reader Connector (optional)

This connector is for connecting internal USB card reader. You can use a card reader to read or transfer files and digital images to your computer.

Pin	Signal	Pin	Signal
1	VCC	2	USB-
3	USB+	4	GND
5	KEY		

❶ The JP1 is shared with one of the USB ports of the I/O back panel. The USB port is located near the Parallel port connector. See "I/O Ports" for more information.

❶ Please check the pin assignment of the cable and the USB header on the mainboard. Make sure the pin assignment will match before plugging in. Any incorrect usage may cause unexpected damage to the system. The vendor won't be responsible for any incidental or consequential damage arising from the usage or misusage of the purchased product.

SIR1: Infrared Port

The infrared port allows the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

Pin	Signal	Pin	Signal
1	NC	2	KEY
3	+5V	4	GND
5	IRTX	6	IRRX

1. Locate the infrared port **SIR1** connector on the mainboard.
2. If you are adding an infrared port, connect the ribbon cable from the port to the SIR1 connector and then secure the port to an appropriate place in your system chassis.

Install Other Devices

Install and connect any other devices in the system following the steps below.

FDC1   IDE2 IDE1   CN4 CN3
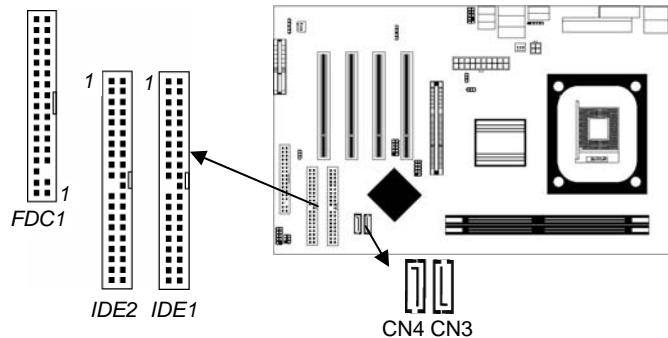
Floppy Disk Drive

The mainboard ships with a floppy disk drive cable that can support one or two drives. Drives can be 3.5" or 5.25" wide, with capacities of 360K, 720K, 1.2MB, 1.44MB, or 2.88MB. Install your drives and connect power from the system power supply. Use the cable provided to connect the drives to the floppy disk drive connector **FDC1**.

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IDE Devices

IDE devices include hard disk drives, high-density diskette drives, and CD-ROM or DVD-ROM drives, among others.

The mainboard ships with an IDE cable that can support one or two IDE devices. If you connect two devices to a single cable, you must configure one of the drives as Master and one of the drives as Slave. The documentation of the IDE device will tell you how to configure the device as a Master or Slave device. The Master device connects to the end of the cable.

Install the device(s) and connect power from the system power supply. Use the cable provided to connect the device(s) to the Primary IDE channel connector **IDE1** on the mainboard.

If you want to install more IDE devices, you can purchase a second IDE cable and connect one or two devices to the Secondary IDE channel connector **IDE2** on the mainboard. If you have two devices on the cable, one must be Master and one must be Slave.

Serial ATA Devices

The **Serial ATA (Advanced Technology Attachment)** is the standard interface for the IDE hard drives, which is designed to overcome the design limitations while enabling the storage interface to scale with the growing media rate demands of PC platforms. It provides you a faster transfer rate of **150 Mbytes/ second**. If you have installed a Serial ATA hard drive, you can connect the Serial ATA cables to the Serial ATA hard drive or the connecter on the mainboard.

On the mainboard, locate the Serial ATA connectors **CN3/CN4**, which support new Serial ATA devices for the highest data transfer rates, simpler disk drive cabling and easier PC assembly.

It eliminates limitations of the current Parallel ATA interface, but maintains register compatibility and software compatibility with Parallel ATA.

Internal Sound Connections

If you have installed a CD-ROM drive or DVD-ROM drive, you can connect the drive audio cable to the onboard sound system.
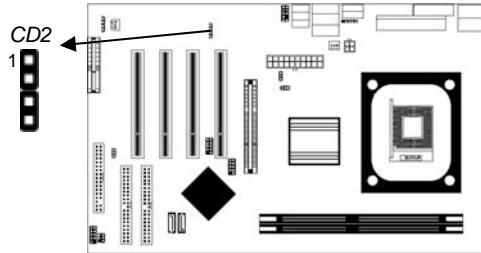
When you first start up your system, the BIOS should automatically detect your CD-ROM/DVD drive. If it doesn't, enter the Setup Utility and configure the CD-ROM/DVD drive that you have installed. On the mainboard, locate the 4-pin connector **CD2**.

Pin	Signal
1	CD IN L
2	GND
3	GND
4	CD IN R

Expansion Slots

This mainboard has one AGP, one CNR and four 32-bit PCI slots.
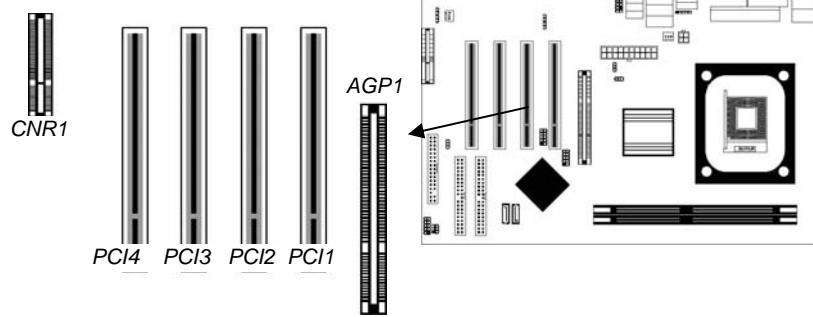
Follow the steps below to install an AGP/CNR/PCI expansion card.
1. Locate the AGP, CNR or PCI slots on the mainboard.
2. Remove the blanking plate of the slot from the system chassis.
3. Install the edge connector of the expansion card into the slot.
    Ensure the edge connector is correctly seated in the slot.
4. Secure the metal bracket of the card to the system chassis with
    a screw.

8x/4x AGP Slot
You can install a graphics adapter that supports the 8x/4xAGP
specification and has a 8x/4x AGP edge connector in the AGP slot.

CNR Slot
You can install the CNR (Communications and Networking Riser)
cards in this slot, including LAN, Modem, and Audio functions.

PCI Slots
You can install the 32-bit PCI interface expansion cards in the slots.

Chapter 3

BIOS Setup Utility

Introduction

The BIOS Setup Utility records settings and information of your computer, such as date and time, the type of hardware installed, and various configuration settings. Your computer applies the information to initialize all the components when booting up and basic functions of coordination between system components.

If the Setup Utility configuration is incorrect, it may cause the system to malfunction. It can even stop your computer booting properly. If it happens, you can use the clear CMOS jumper to clear the CMOS memory which has stored the configuration information; or you can hold down the **Page Up** key while rebooting your computer. Holding down the **Page Up** key also clears the setup information.

You can run the setup utility and manually change the configuration. You might need to do this to configure some hardware installed in or connected to the mainboard, such as the CPU, system memory, disk drives, etc.

Running the Setup Utility

Every time you start your computer, a message appears on the screen before the operating system loading that prompts you to "*Hit <DEL>if you want to run SETUP*". Whenever you see this message, press the **Delete** key, and the Main menu page of the Setup Utility appears on your monitor.

AMIBIOS SIMPLE SETUP UTILITY – VERSION 1.21.12
(C) 2000 American Megatrends, Inc. All Rights Reserved

Standard CMOS Setup	Features Setup
Advanced Setup	CPU PnP Setup
Power Management Setup	Hardware Monitor
PCI / Plug and Play Setup	Change Password
Load Optimal Settings	Exit
Load Best Performance Settings	

Esc : Quit   ↑ ↓ ← →: Select Item   (Shift)F2 : Change Color   F5 : Old Values
F6 :   Optimal values   F7 : Best performance values   F10 : Save&Exit

Standards COMOS setup for changing time, date, hard disk type, etc.

You can use cursor arrow keys to highlight anyone of options on the main menu page. Press **Enter** to select the highlighted option. Press the **Escape** key to leave the setup utility. Hold down the **Shift** key and press **F2** to cycle through the Setup Utility's optional color schemes.

Some options on the main menu page lead to tables of items with installed values that you can use cursor arrow keys to highlight one item, and press **PgUp** and **PgDn** keys to cycle through alternative values of that item. The other options on the main menu page lead to dialog boxes requiring your answer Yes or No by hitting the **Y** or **N** keys.

If you have already changed the setup utility, press **F10** to save those changes and exit the utility. Press **F5** to reset the changes to the original values. Press **F6** to install the setup utility with a set of default values. Press **F7** to install the setup utility with a set of high-performance values.

Standard CMOS Setup Page

This page displays a table of items defining basic information about your system.

```
┌─────────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – STANDARD CMOS SETUP                      │
│          (C) 2000 American Megatrends, Inc. All Rights Reserved       │
├─────────────────────────────────────────────────────────────────────┤
│ Date  (mm/dd/yy) : Wed Jul 23, 2003                                   │
│ Time  (hh/mm/ss) :  15:10:49                                          │
│                                            LBA   Blk   PIO   32Bit     │
│              Type        Size Cyln Head WPcom Sec Mode  Mode  Mode  Mode │
│ Pri Master  : Auto                                              On     │
│ Pri Slave   : Auto                                              On     │
│ Sec Master : Auto                                               On     │
│ Sec Slave  : Auto                                               On     │
│ Floppy Drive A :  1.44 MB 3 1/2                                        │
│ Floppy Drive B :  Not Installed                                       │
├─────────────────────────────────────────────────────────────────────┤
│ Month :  Jan – Dec                          ESC  :  Exit              │
│   Day :  01 – 31                            ↑↓  :  Select Item        │
│   Year :  1901 – 2099                       PU/PD/+/-  :  Modify       │
│                                             (Shift)F2  :  Color        │
│                                             F3  :  Detect All HDD      │
└─────────────────────────────────────────────────────────────────────┘
```

Date & Time	These items set up system date and time.
IDE Pri Master **Pri Slave** **Sec Master** **Sec Slave**	These items configure devices connected to the Primary and Secondary IDE channels. To configure an IDE hard disk drive, choose *Auto*. If the *Auto* setting fails to find a hard disk drive, set it to *User*, and then fill in the hard disk characteristics (Size, Cyls, etc.) manually. If you have a CD-ROM drive, select the setting *CDROM*. If you have an ATAPI device with removable media (e.g. a ZIP drive or an LS-120), select *Floptical*.
Floppy Drive A **Floppy Drive B**	These items set up size and capacity of the floppy diskette drive(s) installed in the system.

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Advanced Setup Page

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

```
                AMIBIOS SETUP – ADVANCED SETUP
         (C) 2000 American Megatrends, Inc. All Rights Reserved

Quick Boot                Enabled    Auto Detect DIMM/PCI Clk    Enabled
1st Boot Device           IDE-0      Clk Gen Spread Spectrum     Disabled
2nd Boot Device           Floppy
3rd Boot Device           CD/DVD-0
Try Other Boot Devices    Yes
S.M.A.R.T. for Hard Disks Disabled
BootUp Num-Lock           On
Floppy Drive Swap         Disabled
Floppy Drive Seek         Disabled
Password Check            Setup      ESC : Quit       ↑↓←→ : Select Item
Boot To OS/2              No         F1  : Help     PU/PD/+/- : Modify
L2 Cache                  Enabled    F5  : Old Values  (Shift)F2  : Color
System BIOS Cacheable     Enabled    F6  : Load BIOS Defaults
DRAM Timing by SPD        Disabled   F7  : Load Setup Defaults
   DRAM CAS#  Latency     2.5
   DRAM Bank Interleave   Disabled
AGP Comp. Driving         Auto
Manual AGP Comp. Driving  CB
AGP Aperture Size         64MB
Hyper Threading Function  Disabled
```

Quick Boot	If you enable this item, the system starts up more quickly be elimination some of the power on test routines.
1st Boot Device **2nd Boot Device** **3rd Boot Device**	Use these items to determine the device order the computer uses to look for an operating system to load at start-up time.
Try Other Boot Device	If you enable this item, the system will also search for other boot devices if it fails to find an operating system from the first two locations.
S.M.A.R.T. for Hard Disks	Enable this item if any IDE hard disks support the S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) feature.

BootUp Num-Lock	This item determines if the Num Lock key is active or inactive at system start-up time.
Floppy Drive Swap	If you have two diskette drives installed and you enable this item, drive A becomes drive B and drive B becomes drive A.
Floppy Drive Seek	If you enable this item, your system will check all floppy disk drives at start up. Disable this item unless you are using an old 360KB drive.
Password Check	If you have entered a password for the system, use this item to determine, if the password is required to enter the Setup Utility (*Setup*) or required both at start-up and to enter the Setup Utility (*Always*).
Boot To OS/2> 64MB	Enable this item if you are booting the OS/2 operating system and you have more than 64MB of system memory installed.
L2 Cache	Leave these items enabled since all the processors that can be installed on this board have internal L2 cache memory.
System BIOS Cacheable	If you enable this item, a segment of the system BIOS will be copied to main memory for faster execution.
DRAM Timing By SPD	This item allows you to enable or disable the DRAM timing defined by the Serial Presence Detect electrical.
DRAM CAS# Latency	This item determines the operation of SDRAM memory CAS (column address strobe). It is recommended that you leave this item at the default value. The 2T setting requires faster memory that specifically supports this mode.

DRAM Bank Interleave	Enable this item to increase SDRAM memory speed. When enabled, separate memory banks are set for odd and even addresses and the next byte of memory can be accessed while the current byte is being refreshed.
AGP Comp. Driving	Use this item to signal driving current on AGP cards to auto or manual. Some AGP cards need stronger than normal driving current in order to operate. We recommend that you set this item to the default.
Manual AGP Comp. Driving	When AGP Driving is set to Manual, use this item to set the AGP current driving value.
AGP Aperture Size	This item defines an AGP for the graphics. Leave this item at the default value 64MB.
Hyper Threading Function	If your P4 CPU is not HT CPU, this item will be hidden. If your P4 CPU is HT CPU, BIOS will show this item. You can set "Disabled" or "Enabled" to control HT CPU support in O.S. Set "Enabled" to test HT CPU function.
Auto detect DIMM/PCI Clock	When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.
Clk Gen Spread Spectrum	Use this itme to set the system bus spread spectrum for the installed processor.

Power Management Setup Page

This page sets some parameters for system power management operation.

```
┌─────────────────────────────────────────────────────────────────────┐
│           AMIBIOS SETUP – POWER MANAGEMENT SETUP                     │
│          (C) 2000 American Megatrends, Inc. All Rights Reserved     │
├───────────────────────────────────┬─────────────────────────────────┤
│ ACPI Aware O/S              Yes    │                                 │
│ Power Management/APM        Enabled│                                 │
│ Suspend Time Out (Minute)   Disabled                                │
│ LAN/Ring Power On           Disabled                                │
│ Resume On RTC Alarm         Disabled                                │
│ RTC Alarm Date              15     ├─────────────────────────────────┤
│ RTC Alarm Hour              12     │                                 │
│ RTC Alarm Minute            30     │ ESC : Quit       ↑↓←→ : Select Item│
│ RTC Alarm Second            30     │ F1  : Help    PU/PD/+/- : Modify │
│ Keyboard Power On           Disabled│ F5  : Old Values (Shift)F2 : Color│
│   Wake-Up Key               Any key│ F6  : Load BIOS Defaults        │
│      Wake-Up Password       N/A    │ F7  : Load Setup Defaults        │
└───────────────────────────────────┴─────────────────────────────────┘
```

ACPI Aware O/S	This item supports ACPI (Advanced Configuration and Power management Interface). Use this item to enable or disable the ACPI feature.
Power Management	Use this item to enable or disable a power management scheme. If you enable power management, you can use the items below to set the power management operation. Both APM and ACPI are supported.
Suspend Time Out (Minute)	This item sets up the timeout for Suspend mode in minutes. If the time selected passes without any system activity, the computer will enter power-saving Suspend mode.
LAN/Ring Power On	Your system can enter the software power down. If you enable this item, the system can automatically resume if there is traffic on the network adapter.

Resume On RTC Alarm / Date / Hour / Minute / Second	The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.
Keyboard Power On Wake-Up Key Wake-Up Password	If you enable this item, system can automatically resume by pressing hot keys on the keyboard or typing in the password. You must enable the Keyboard Power On jumper and use an ATX power supply in order to use this feature.

PCI / Plug and Play Setup Page

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.

```
┌─────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP            │
│          (C) 2000 American Megatrends, Inc. All Rights Reserved   │
├─────────────────────────────────┬───────────────────────────────┤
│ Plug and Play Aware O/S    Yes   │                               │
│ Primary Graphics Adapter   AGP   │                               │
│ Allocate IRQ to PCI VGA    Yes   │                               │
│ PCI IDE BusMaster          Disabled                              │
│                                  ├───────────────────────────────┤
│                                  │ ESC : Quit      ↑↓←→ : Select Item │
│                                  │ F1  : Help      PU/PD/+/- : Modify │
│                                  │ F5  : Old Values (Shift)F2 : Color │
│                                  │ F6  : Load BIOS Defaults       │
│                                  │ F7  : Load Setup Defaults      │
└─────────────────────────────────┴───────────────────────────────┘
```
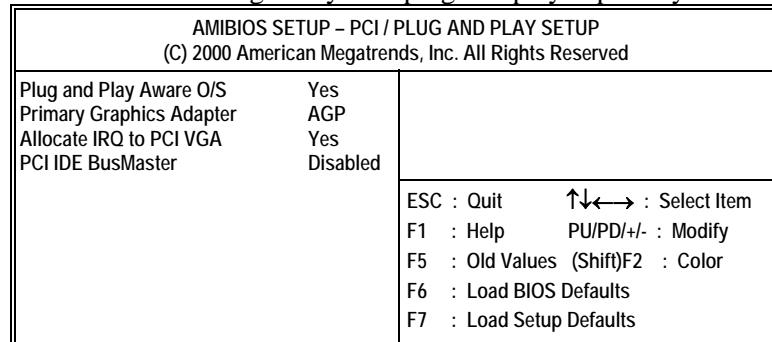
Plug and Play Aware O/S	Enable this item if you are using an O/S that supports Plug and Play such as Windows 95 or 98.
Primary Graphics Adapter	This item indicates if the primary graphics adapter uses the PCI or the AGP bus. The default AGP setting still lets the onboard display work and allows the use of a second display card installed in an AGP slot.

Allocate IRQ to PCI VGA	If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.
PCI IDE BusMaster	This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

Load Optimal Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of fail-safe default values. These default values are not very demanding and they should allow your system to function with most kinds of hardware and memory chips.
Note: It is highly recommend that users enter this option to load optimal values for accessing the best performance.

Load Best Performance Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of best-performance default values. These default values are quite demanding and your system might not function properly if you are using slower memory chips or other low-performance components.

Features Setup Page

This page sets up some parameters for peripheral devices connected to the system.

```
┌──────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – FEATURES SETUP                       │
│       (C) 2000 American Megatrends, Inc. All Rights Reserved      │
├────────────────────────────────┬─────────────────────────────────┤
│ OnBoard FDC              Enabled                                  │
│ OnBoard Serial PortA     3F8h/COM1                                │
│ OnBoard IR Port          Disabled                                 │
│ OnBoard Parallel Port    378h                                     │
│   Parallel Port Mode     SPP                                      │
│   Parallel Port IRQ      7                                        │
│   Parallel Port DMA      N/A      ┌──────────────────────────────┐│
│ OnBoard PATA-IDE         Enabled  │ ESC : Quit    ↑↓←→ : Select  ││
│ Audio Device             Enabled  │ Item                         ││
│ Modem Device             Auto     │ F1  : Help    PU/PD/+/- : Modify││
│ Ethernet Device          Enabled  │ F5  : Old Values (Shift)F2 : Color││
│ USB Controller           Enabled  │ F6  : Load BIOS Defaults      ││
│ USB Device Legacy Support Disabled │ F7  : Load Setup Defaults     ││
│ ThumbDrive Support for DOS Disabled                               │
└──────────────────────────────────────────────────────────────────┘
```

OnBoard FDC	Use this item to enable or disable the onboard floppy disk drive interface.
OnBoard Serial PortA	Use this item to enable or disable the onboard COM1/2 serial port, and to assign a port address.
OnBoard IR Port	Use this item to enable or disable the onboard infrared port, and to assign a port address.
Parallel Port Mode	Use this item to set the parallel port mode. You can select SPP (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or ECP + EPP.
Parallel Port IRQ	Use this item to assign IRQ to the parallel port.
Parallel Port DMA	Use this item to assign a DMA channel to the parallel port.
OnBoard PATA-IDE	Use this item to enable or disable the onboard PATA-IDE channel.

Audio Device	This item enables or disables the AC'97 audio chip.
Modem Device	This item enables or disables the MC'97 modem chip.
Ethernet Device	This item enables or disables the onboard Ethernet LAN.
USB Controller	Use this item to select the USB ports or disabled.
USB Device Legacy Support	This item allows you to enable the USB device, if you have installed a USB device on the system board.
ThumbDrive Support For DOS	Enable this item to make a small portion of memory storage device for the USB ports.

CPU PnP Setup Page

This page helps you manually configure the CPU of this mainboard. The system will automatically detect the type of installed CPU and make the appropriate adjustments to these items on this page.

```
┌─────────────────────────────────────────────────────────────────┐
│                 AMIBIOS SETUP – CPU PnP SETUP                     │
│        ©2000 American Megatrends, Inc. All Rights Reserved        │
├───────────────────────────────────┬─────────────────────────────┤
│ CPU Ratio                 8.0x     │                             │
│ CPU Over-clocking Func.   Disabled │                             │
│ CPU Frequency             100 MHz  │                             │
│ CPU Over-clocking Freq.   N/A      │                             │
│ DRAM Frequency            Auto     │                             │
│                                    ├─────────────────────────────┤
│                                    │ ESC : Quit    ↑↓←→ : Select Item │
│                                    │ F1  : Help    PU/PD/+/- : Modify │
│                                    │ F5  : Old Values  (Shift)F2  : Color │
│                                    │ F6  : Load Optimal values   │
│                                    │ F7  : Load Best performance values │
└───────────────────────────────────┴─────────────────────────────┘
```

CPU Ratio/ Frequency	These items show the ratio and frequency of the CPU installed in your system.
CPU Over-clocking Func./ Freq.	This item decides the CPU over-clocking function/frequency installed in your system. If the over-clocking fails, please turn off the system power. And then, hold the PageUp key (similar to the Clear CMOS function) and turn on the power, the BIOS will recover the safe default.
DRAM Frequency	This item shows the frequency of the DRAM in your system.

Hardware Monitor Page

This page sets up some parameters for the hardware monitoring function of this mainboard.

```
                     AMIBIOS SETUP – HARDWARE MONITOR
              (C) 2000 American Megatrends, Inc. All Rights Reserved

 *** System Hardware  ***
 Vcore                      1.632V
 Vcc 2.5V                   2.496V
 Vcc 3.3V                   3.392V
 Vcc 5V                     4.972V
 SB5V                       5.026V      ESC : Quit       ↑↓←→ : Select Item
 VBAT                       3.488V      F1  : Help       PU/PD/+/- : Modify
 SYSTEM Fan Speed           0 RPM       F5  : Old Values  (Shift)F2  : Color
 CPU Fan Speed              1288 RPM    F6  : Load BIOS Defaults
 Power Temperature          36°C/96°F   F7  : Load Setup Defaults
 SYSTEM Temperature         45°C/113°F
 CPU Temperature            40°C/104°F
```

CPU / System Temperature	These items display CPU and system temperature measurement.
FAN & Voltage Measurements	These items indicate cooling fan speeds in RPM and the various system voltage measurements.

Change Password

If you highlight this item and press Enter, a dialog box appears that you can enter a Supervisor password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. There will be the second dialog box asking you to retype the password for confirmation. Press Enter after you have retyped it correctly. Then, the password is required for the access to the Setup Utility or for it at start-up, depending on the setting of the Password Check item in Advanced Setup.

Exit

Highlight this item and press Enter to save the changes that you have made in the Setup Utility configuration and exit the program. When the Save and Exit dialog box appears, press Y to save and exit, or press N to exit without saving.

Chapter 4

Software & Applications

Introduction

This chapter describes the contents of the support CD-ROM that comes with the mainboard package.

The support CD-ROM contains all useful software, necessary drivers and utility programs to properly run our products. More program information is available in a README file, located in the same directory as the software.

To run the support CD, simply insert the CD into your CD-ROM drive. An Auto Setup screen automatically pops out, and then you can go on the auto-installing or manual installation depending on your operating system.

If your operating system is Windows 98/ME/2000/XP, it will automatically install all the drivers and utilities for your mainboard; if Windows NT or manual installation, please follow the instructions described as the Installing under Windows NT or Manual Installation section.

Installing Support Software

1. Insert the support CD-ROM disc in the CD-ROM drive.
2. When you insert the CD-ROM disc in the system CD-ROM drive, the CD automatically displays an Auto Setup screen.
3. The screen displays three buttons of **Setup**, **Browse CD** and **Exit** on the right side, and three others **Setup**, **Application** and **ReadMe** at the bottom. Please see the following illustration.

The **Setup** button runs the software auto-installing program as explained in next section.

The **Browse CD** button is a standard Windows command that you can check the contents of the disc with the Windows 98 file browsing interface.

The **Exit** button closes the Auto Setup window. To run the program again, reinsert the CD-ROM disc in the drive; or click the CD-ROM driver from the Windows Explorer, and click the Setup icon.

The **Application** button brings up a software menu. It shows the bundled software that this mainboard supports.

The **ReadMe** brings you to the Install Path where you can find out path names of software driver.

Auto-Installing under Windows 98/ME/2000/XP

If you are under Windows 98/ME/2000/XP, please click the **Setup** button to run the software auto-installing program while the Auto Setup screen pops out after inserting the support CD-ROM:

1. The installation program loads and displays the following screen. Click the **Next** button.

2. Select the items that you want to setup by clicking on it (the default options are recommended). Click the **Next** button to proceed.
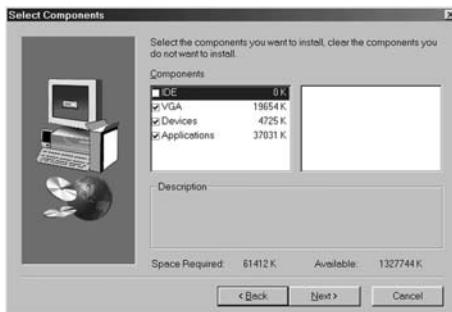
3. The support software will automatically install.

Once any of the installation procedures start, software is automatically installed in sequence. You need to follow the onscreen instructions, confirm commands and allow the computer to restart as few times as needed to complete installing whatever software you selected. When the process is finished, all the support software will be installed and start working.

Installing under Windows NT or Manual Installation

If you are under Windows NT, the auto-installing program doesn't work out; or you have to do the manual installation, please follow this procedure while the Auto Setup screen pops out after inserting the support CD-ROM:

1. Click the **ReadMe** to bring up a screen, and then click the Install Path at the bottom of the screen.
2. Find out your mainboard model name and click on it to obtain its correct driver directory.
3. Install each software in accordance with the corresponding driver path.

Bundled Software Installation

All bundled software available on the CD-ROM is for users' convenience. You can install bundled software as follows:
1. Click the **Application** button while the Auto Setup screen pops out after inserting the support CD-ROM.
2. A software menu appears. Click the software you want to install.
3. Follow onscreen instructions to install the software program step by step until finished.

Hyper Threading CPU

You must update BIOS to initiate BIOS Hyper Threading Function and use HT CPU function under WinXP Operating System; if not, please disable this option.

♦ When BIOS detects the HT CPU, it shows the "Hyper Threading Function (default Disabled)" option, which you must set Enabled if you want to test HT CPU function. If there is no HT CPU, this option is hidden and default Disabled.

♦ You must re-install WINXP to activate the HT CPU function.
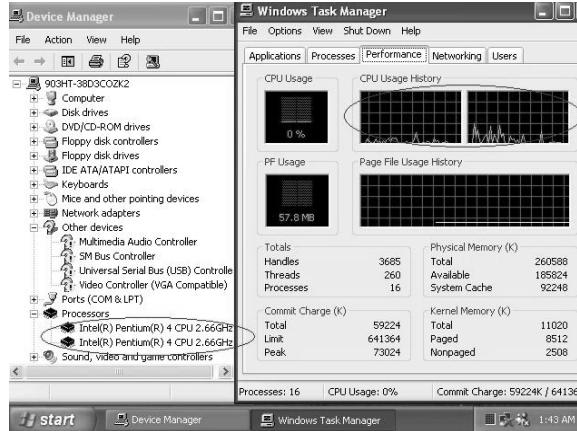
While you are in Windows Task Manager, please push down ctrl+Alt Del keys. A dual CPU appears in the CPU Usage History&Device Manager under WinXP.

Note: Hyper Threading Function only works under WINXP Operating System; therefore, disable it under other Operating System.